

Virginia's Coastal Resources Management Program links state, local, and federal efforts to enhance Virginia's coastal resources. Virginia's coastal zone includes the 29 counties and 15 cities of Tidewater Virginia, and all tidal waters out to the three mile territorial sea boundary. The program includes state laws and policies to protect and manage Virginia's coastal resources, implemented by the Departments of Environmental Quality, Conservation and Recreation, Game and Inland Fisheries, and Health, and the Marine Resources Commission. The Department of Environmental Quality serves as lead agency for the program.

SAVING SPACE FOR SHELLFISH FARMING AND SEA GRASSES: CAN WE HAVE BOTH?

The expansion of shellfish farming and the restoration of underwater sea grass beds are both worthy goals which the Commonwealth is vigorously pursuing. But both activities require shallow, near-shore water free of toxic run-off. So is there enough room in our coastal waters for both activities to expand?

The Virginia Coastal Program recently called together state and federal resource managers, shellfish growers, and sea grass and shellfish scientists to determine whether we have all the information we need to map potential expansion areas, and to generate ideas for policy and management options that accommodate both important activities.

This work is being coordinated with the Chesapeake Bay Commission which was directed by the 1998 Virginia General Assembly to "study means for the protection of submerged aquatic vegetation" (House Joint Resolution No. 283). Aquaculture was identified as one of several competing uses of the shallow water habitats that may be in conflict with sea grass.

"The Commission is hopeful the sea grass restoration goals for the Bay and Virginia's coastal estuaries can be achieved. We look forward to working with the Virginia Coastal Program to find solutions to current conflicts between sea grass restoration and aquaculture," states Russ Baxter, Virginia Director of the Chesapeake Bay Commission.

This concern is also shared by industry specialists like Mike Peirson of Cherrystone Aquafarms on Virginia's Eastern Shore who commented, "I think the issue is more com-

"We are eager to find a solution that allows our business to expand and sea grass to thrive."

Mike Peirson, Cherrystone Aquafarms

plicated than clams versus sea grass. We are eager to find a solution that allows our business to expand and sea grass to thrive. We also need to consider whether aquaculture helps increase the number of wild clams by providing additional clam spawn to the surrounding waters."

Current aquaculture permitting policy, administered by the Army Corps of Engineers, limits activities on existing sea grass beds and in areas of historical or potential sea grass presence and restoration. But Chip Neikirk, an Environmental Engineer working on aquaculture issues for the Virginia Marine Resources Commission, which also discourages aquaculture impacts on sea grasses, noted that there may be an interesting paradox in this competition for space.

"There appears to be some evidence that shellfish may actually improve surrounding water quality by filtering out and feeding on tiny algae to the point that the water becomes clear enough to allow sunlight to reach the

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Message from the Director



Dennis Treacy

One of the most challenging aspects of my new position as DEQ Director is to make all of the parts of this agency fit together and "hum" like a well-oiled machine. We are fortunate to have programs such as the Virginia Coastal Program that are designed to do just that - not only within DEQ but throughout the Commonwealth.

The Coastal Program is uniquely positioned to serve as a facilitator for resolution of complex coastal management issues. This "networked" program is actually the collective authorities of a variety of state agencies and local governments, but what the program here at DEQ strives to do is bring those entities together to facilitate the development of effective solutions. As we look toward the next three years, we will be identifying key issues where the Coastal Program can focus its expertise and funding to meet its mission: *to coordinate effective coastal resources management to achieve more vital and sustainable coastal communities and ecosystems for the Commonwealth.*

I hope you find this issue of the *Virginia Coastal Program News* informative. Our cover story provides a good example of what our Coastal Program Network can accomplish when we all work together, and I look forward to working with all of you.

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Virginia Coastal Program Begins 14th Year

The Virginia Coastal Program has received a \$2,700,000 grant from NOAA's Office of Ocean and Coastal Resource Management. The 2.7 million will fund 47 different projects that will run from October 1998 to September 1999. The Program uses these funds for state agency and Tidewater local government projects which enhance and protect Virginia's coastal resources. State agencies and local governments will match the award with \$2,280,000 in cash or in-kind services.

For the first time since the Virginia Coastal Program began, a coastal resource assessment and review of program management effectiveness will be undertaken. Program staff will be assisted through a \$75,000 grant to the *Virginia Institute of Marine Science*. The biennial review of the Commonwealth's coastal resources, will pay particular attention to gaps in information and effectiveness of management programs. The review will be done in cooperation with Virginia's state agencies, local governments and federal partners.


A \$125,000 grant to the *Department of Conservation and Recreation* will be used to acquire fee simple or other interests in land on Virginia's Eastern Shore to protect migratory songbird stopover habitat. This coastal area contains non-tidal and tidal wetlands, exemplary undeveloped beach, well developed dune communities, maritime forest and grasslands. The area also supports rare animal and plant species and high biological diversity.

The *Virginia Department of Conservation and Recreation* (DCR) is also receiving a \$12,700 grant to promote adoption of a local stormwater management program in Virginia's coastal localities. DCR will create a Virginia Stormwater Management Handbook which will be distributed to the localities. A series of training workshops will be held in November 1998 to update participants on: the March 1998 amendments to Virginia's Stormwater Management Regulations; the stormwater handbook; and Best Management Practice design and review. In addition, a series of Technical Bulletins will be developed to provide updates on technical design and new developments in BMP technology. See page 14 Coastal Clips for more

information on Virginia's amended stormwater management regulations.

The *Virginia Department of Health* will receive a \$19,600 grant to improve site evaluation of onsite wastewater treatment systems and technologies. The agency will use this funding to provide hands-on training to local health department field staff to enable them to better assess the relationship between onsite treatment systems and the hydrologic characteristics of local watersheds, and to understand the fate of onsite system nutrients in a variety of soil and site conditions. More than 10 sites in coastal localities demonstrating a range of soil descriptions and onsite wastewater technologies will be studied. These studies will help the Department of Health and other regulatory agencies prioritize areas more susceptible to nonpoint pollution, implement appropriate cost-effective on-site wastewater treatment technologies and management practices, and develop protocols for use in the department's regulation revisions to better address comprehensive onsite wastewater planning.

A \$59,095 grant to the Virginia Institute of Marine Science will be used to determine the geographic extent of existing primary dune and secondary dune systems around the Chesapeake Bay region of Virginia's Coastal Zone, and production of a dune classification system. This classification system, which will be developed in cooperation with the Virginia Marine Resources Commission, will identify dune system types, including natural dunes, man influenced dunes and man-made dunes.

This project will determine how secondary dunes are connected to and possibly interdependent on primary dunes, and provide a scientific link between primary and secondary dune features. The relationship of primary dunes and secondary may not always exist and therefore must be understood before the value of secondary dunes as habitat and flood protection can be properly assessed. Secondary dune systems, unlike primary dune systems, are currently not protected under state regulations. This project will provide the scientific background necessary to determine if this coastal resource is adequately protected. 

See **News Around the Zone** for highlights of local projects.

Environmentally Sensitive Site Design

By Shep Moon


Research has proven that effective site design can reduce polluted runoff resulting from development, and that many of today's standard development practices may actually contribute to the problem of polluted urban runoff rather than reduce it. The Chesapeake Bay Local Assistance Department (CBLAD), with a \$40,000 grant from the Virginia Coastal Program, is developing a handbook on site design techniques that help protect water quality. The handbook will provide Virginia-specific information to local governments and the development community.

In a survey distributed by CBLAD to determine technical assistance priorities, local governments implementing the Chesapeake Bay Preservation Act expressed a need for more information on site design techniques. Water quality protection provisions and local land management ordinances, adopted in accordance with the Bay Act, contain general performance criteria for improved site design, including minimizing land disturbance, the use of impervious surfaces, and preserving vegetation. Taking this a step further, the handbook will provide more specific guidance on how to apply these general criteria in ways that not only protect water quality, but are cost effective for developers and result in marketable properties.

After describing the individual site design techniques recommended for water quality protection, the handbook will provide an assessment of

the impact of replacing commonly used site designs with those that better protect water quality. The water quality benefits, development costs, and the marketing potential resulting from the application of the new development practices will be documented through the use of case studies from Virginia's coastal zone. The case studies will involve a variety of residential and commercial developments from urban, suburban and rural localities. Finally, the handbook will examine the "fit" of the proposed site design techniques with existing local ordinances, state regulations and enabling legislation. The goal is to determine whether the techniques are required, encouraged, discouraged, or even allowed under the current system of land management.

Preparation of the handbook is being guided by a steering committee with representatives from state agencies and local governments, the development community and the environmental community. Development of the handbook's text, illustrations and layout has been subcontracted to Lardner/Klein Landscape Architects, Aquarius Engineering and Kristen Mosbaek Communications. An initial printing of the handbook will be available in November. A workshop will also be held this fall to review the site design techniques described in the handbook.

For more information on the handbook or the workshop, contact Scott Kudlas or Shep Moon at CBLAD at 1-800-243-7229. 

1998 COASTAL PROGRAM AWARDS

TOTAL FEDERAL AWARD - \$2,700,000

Grantee	Title	Federal Award	Project Contact	Phone
Section 306/306A State Program Implementation Projects				
DEQ	Coastal Program Management & Special Projects	\$280,000	Laura McKay	(804)698-4323
DEQ	Coastal Program Outreach	\$60,000	Virginia Witmer	(804)698-4320
DEQ	EIR and Federal Consistency	\$126,380	Ellie Irons	(804)698-4325
DEQ	Environmental Education	\$68,000	Ann Regn	(804)698-4442
VMRC	Permit Compliance	\$140,000	Bob Grabb	(757)247-2250
DLS	Chesapeake Bay Commission	(match only)	Russ Baxter	(804)786-4849
CBLAD	Ches Bay Local Environ Planning Assistance	\$93,000	Scott Kudlas	(804)225-3440
DCR-NH	Natural Heritage Support for Localities	\$45,608	Steve Carter-Lovejoy	(804)786-8377
DCR-NH	Land Acquisition for Natural Area Preserve	\$125,004	Larry Smith	(804)786-7951
DCR-SWC	TMDL Program Development (tentative)	\$55,000	Mark Bennett	(804)371-7485
DCR-SWC	Promoting Local Stormwater Regulations	\$12,700	Joe Battiatia	(804)371-7492
DEQ-CBP	Chesapeake Bay Program Coordination	\$92,489	Collin Powers	(804)698-4324
VDH	Water Table Study: Onsite Wastewater Treatment	\$19,600	Patricia Miller	(804)371-0780
VIMS/DEQ	Adapting Tidal H2O Quality Model for DEQ VPDES	\$34,510	Albert Kuo	(804)684-7212
VIMS	Chesapeake Bay Dune Systems: Evolution & Status	\$59,095	Scott Hardaway	(804)684-7277
VIMS	Review of Coastal Resources Management	\$75,000	Carl Hershner	(804)684-7387
VIMS	Improving Success of Constructed Marshes	\$39,774	Kirk Havens	(804)684-7159
VIMS	New Land Use/Land Cover Classification Dataset	\$55,759	Marcia Berman	(804)642-7188
VIMS	Optimal Use of Culch in Oyster Sanctuaries	\$35,000	Roger Mann	(804)684-7360
VIMS	SAV Mapping in Chesapeake & Coastal Bays 1998	\$56,181	Robert Orth	(804)684-7392
VIMS	Stranding Patterns & Mortality in Sea Turtles	\$26,500	Jack Musick	(804)642-7000
VIMS	Tidal Wetlands Technical Support & Handbook	\$40,400	Carl Hershner	(804)684-7387
Section 306/306A Local Program Implementation Projects				
ANPDC	E. Shore of VA Ground Water Mgmt Project	\$30,000	Jim McGowan	(804)787-2936
ANPDC	Coastal Resources Mgmt Project	\$30,000	Jim McGowan	(804)787-2936
Arlington Cnty	Watershed Management Plan	\$55,745	Christy Williams	(703)228-3613
Chesapeake	Ches Bay Youth Conservation Corp	\$27,750	Dourina Peterson	(757)382-8196
Crater PDC	Coastal Management Program	\$25,000	Dennis Morris	(804)861-1666
Essex/K&Q/KWm	Coastal Zone Mgmt & Enforcement	\$22,267	Gary Allen	(804)443-4331
Gloucester	Dragon Run Watershed Protection Project	\$20,525	Christine Breddy	(804)693-4040
Hampton	Grandview Beach Stewardship & Monitoring Project	\$35,235	Chris Hickman	(757)825-4657
Henrico	Chickahominy Watershed Restoration	\$55,825		(804)775-0951
HRPDC	Hampton Roads Technical Assistance Program	\$45,000	John Carlock	(804)420-8300
Middlesex	Planner & Erosion/Sediment Inspector	\$18,540	Tim Wilson	(804)758-3382
MPPDC	Regional Coastal Mgmt Network	\$39,530	Jim Uzel	(804)758-2311
NNPDC	Northern Neck Regional Wetlands Engineer	\$27,081	Stuart McKenzie	(804)529-7400
NNPDC	Regional Environ Data for Coastal Zone Mgmt	\$30,000	Stuart McKenzie	(804)529-7400
NVPDC	Regional Program Support & Technical Assistance	\$12,568	David Bulova	(703)642-4624
Richmond (City)	Reedy Creek Watershed Mgmt Plan	\$50,000	Dean Starook	(804)780-7635
RRPDC	Comprehensive Coastal Assistance Program	\$22,234	John Fisher	(804)358-3684
Spotsylvania	Courthouse Area Stormwater Mgmt Program	\$47,500	James Dossett	(540)582-7026
Spotsylvania	BMP/Demonstration Site	\$10,000	James Dossett	(540)582-7026
Virginia Beach	Marine Mammal & Sea Turtle Stranding Response	\$35,850	Mark Swingle	(757)437-6022
Virginia Beach	Teaching Watercraft Operations re: Marine Species	\$19,350	Mark Swingle	(757)437-6022
Section 6217 Coastal Nonpoint Source Pollution Control Program				
DCR	Implementation of Coastal Nonpoint Program	\$80,000	Richard Hill	(804)786-7119
Section 309 Coastal Zone Enhancement Projects				
Northampton	Special Area Mgmt Plan for Sustainable Develop	\$50,000	Tim Hayes	(757)687-0477
VB/CHES	Special Area Mgmt Plan for the Southern Watershed	\$300,000	John Carlock	(757)420-8300
VMRC/DEQ	Aquaculture Management Initiative	\$70,000	Bob Grabb	(757)247-2250

NEWS AROUND THE ZONE

1 Grandview Beach

This summer, the City of Hampton, with funding from the Virginia Coastal Program, initiated the first phase of a plan to balance the public access needs of its citizens with protection of the ecological and biological diversity of the Grandview Beach Preserve.

The Grandview Beach Preserve, owned and managed by the city, includes the city's largest marsh system. This marsh supports populations of several rare species, including the primary nesting colonies of Least Terns in Virginia, and one of the largest on the east coast. Limited public access to Hampton's waterfront has caused conflict between the preserve's rare species and beach visitors.

With an initial grant from the Coastal Program this past summer, the city began a pilot Seasonal Beach Steward Program to monitor and collect data on rare species, mark off critical habitat, and provide educational and

interpretative services to beach visitors. This program will enhance and expand upon 25 years of research on the preserve's colonial nesting birds, conducted by Dr. Ruth Beck from the College of William and Mary.


"I am excited to be working with the Virginia Coastal Program and the City of Hampton to train volunteers to become stewards of Grandview Beach, and to get people in the community interested in this exceptional area and its resources," says Dr. Beck.

Cathy Viverette, Department of Conservation and Recreation, Division of Natural Heritage, who is working with the city on this project explains, "The Grandview Beach Stewards engage and interact with visitors. This is an opportunity to teach visitors about the protection and preservation of rare species and the exceptional habitat of Grandview Beach."

The Coastal Program has also awarded the City a \$35,235 grant for FY1998 to develop a natural resource management plan for Grandview, and interpretive signage for key locations near sensitive areas in the preserve. The city will also develop brochures for visitors with information about Grandview's natural history and the site's important role in preserving rare species.

To further encourage citizen participation in monitoring and stewardship efforts, the City will begin a Volunteer Stewardship Program. Citizen monitors will assist Beach Stewards,

City Park Rangers and state resource managers in an inventory of rare species and will gather habitat and recreational-use data. The inventory and land-use data will contribute to the development of the Grandview Beach Natural Area Resource Management Plan, which will be written by the Department of Conservation and Recreation, Division of Natural Heritage (DCR-NH). The City and DCR-DNH have also discussed Natural Area Dedication of a portion of Grandview Beach and inclusion of that piece in Virginia's Natural Area Preserve System. "It is inspiring to see such cooperation between agencies for this very worthwhile project. The educational process which is taking place (at Grandview Beach) is of paramount significance," states Chris Hickman, City of Hampton.

To address its lack of appropriate public access, the City of Hampton intends to seek additional funding from the Coastal Program in 1999 to develop a Master Beach Front Plan. The plan may involve acquisition of suitable waterfront areas to expand public access opportunities in the City and help alleviate some of the visitation problems it has at Grandview Beach. For more information about the Grandview Beach Project, please contact Chris Hickman at (757) 825-4657 or e-mail: chickman@widomaker.com. 

2 Arlington County Buffer Inventory

Arlington County has received a \$55,745 grant to inventory its streams and riparian areas to establish baseline data for use in developing and implementing a watershed management plan intended to guide stream restoration activities and improve water quality. The county will create a list of restoration priorities, develop county nonpoint source education and incentive strategies, and implement a long-term tracking system that will evaluate the effectiveness of these programs.


A lack of site-specific data on the county's streams and riparian corridors, including water quality, biological integrity, streambank erosion, habitat condition, and hydrogeomorphic classi-

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- 1 Grandview Beach
 - 2 Arlington County
 - 3 Marine Animals
 - 4 Southern Watershed



fication, has made it impossible to target specific urban nonpoint source problems and to identify priority locations for rehabilitation activities. The County is located in a highly populated urban corridor and most of its nonpoint source pollution originates from stormwater and eroding streambanks.

The county will use its GIS system to produce maps and conduct analyses, leading to more informed decisions regarding permits, waivers and exception requests under the county's Chesapeake Bay Program Ordinance. The maps will also aid the county in enforcing its Erosion and Sediment Control and Stormwater Ordinances. Additionally, the County can use the data to meet the intent of the Clean Water Act Reauthorization (1992) for watershed planning. This information will also help in developing effective public education and incentive programs to mitigate the impacts of development practices.

For more information on this project, please contact Christy Williams, Arlington County at (703) 228-3613. 


3 Vessels and Protected Marine Animals

In recent years, an increasing number of boats and personal watercraft competing for the nearshore waters of Virginia Beach has received great attention. Intense and unmanaged use of these waters has resulted in more accidents, as well as an increase in the number of marine animals which are harassed, injured or killed by these vessels. The Virginia Coastal Program has awarded the Virginia Marine Science Museum Stranding Center a \$19,350 grant to address the impacts of increasing vessel traffic on our protected marine species — marine mammals, such as bottlenose dolphins, and sea turtles. The museum has been studying the population of bottlenose dolphins in the near shore waters of Virginia Beach since 1989. In that time, staff have witnessed regular dolphin harassment by members of the general public. In areas where personal watercraft are constantly operating, researchers have noted that dolphins move

through very quickly or avoid the area where they once socialized, fed or played. Most vessel operators are unaware of the laws that protect dolphins from harassment and are unaware they are harassing the animals. Some are even unaware that dolphins live in the area.

With proper training, vessel operators could learn to avoid harassing or colliding with marine mammals and sea turtles. In cooperation with Virginia's Department of Game and Inland Fisheries, the museum will develop an educational program, including a protected species curriculum. The curriculum, which could be included in boat and personal watercraft safety and operating courses, will instruct vessel operators to recognize Virginia's protected marine species, familiarize them with the laws safeguarding the animals, and offer guidelines for vessel operation while in the vicinity of protected species.

The museum will coordinate with local, state and federal agencies responsible for training, monitoring and policing Virginia's tidal waters. The guidelines developed will be distributed to vessel operators observed harassing marine animals, as well as to vessel retailers. The educational campaign will also include public service announcements for radio and television, and the museum will systematically monitor levels of harassment on dolphins to test the effectiveness of the campaign.

For more information on this project, please call Mark Swingle, Virginia Marine Science Museum Stranding Program Director at (757) 437-6022. 

4 Southern Watershed SAMP

The Hampton Roads Planning District Commission will receive \$300,000 in Section 309 Coastal Program funding to continue development of a Special Area Management Plan to protect the natural resources, sensitive lands and water supplies of the Southern Watersheds of the cities of Virginia Beach and Chesapeake. Funding will enable the PDC to

work with the cities to develop enforceable policies for the preservation and enhancement of the area's significant and unique natural and cultural resources.


The objectives of the SWAMP are:

- To protect water quality for water supplies and natural resources conservation.
- To preserve open lands to help protect and enhance water quality.
- Ensure compatibility of recreational activities and commerce with natural resource protection.
- To maintain the rural character of the Southern Watershed while providing for rural residential development.
- To sustain environmentally-compatible agricultural and forestal activities in the Southern Watershed.

To achieve the SWAMP objectives, contained in a Memorandum of Agreement between the two cities, the following enforceable policies are being pursued: refine development controls to protect water quality and preserve critical habitat; improve the effectiveness of preservation districts; protect habitat through easements and information exchanges; improve urban and agricultural BMPs; and manage competing waterway uses.

A festival is held each year to celebrate the natural and cultural resources of the Southern Watershed, and educate the general public about the efforts of the SAMP and how they can help ensure its success. The 2nd Annual Green Sea Festival will be held this year in Munden Point Park in the City of Virginia Beach on October 10. See the Coastal Calendar for more details.

Since its 1993 inception, the Southern Watershed SAMP has received a total of \$646,000 in funding from the Coastal Program. The SAMP is scheduled to be completed in September 2000.

For more information about this project, please call Mark Slauter, Virginia Coastal Program at (804) 698-4135, or Eric Walberg of HRPDC at (757) 420-8300. 

This Rest Stop is for the Birds

Beginning as early as mid-July, the Eastern Shore of Virginia experiences a flood whose waves lap in ever increasing volume through mid-October, then gradually subside by early December. You can't swim in these waves — they are waves of migratory birds — millions of shore birds, songbirds, marsh birds and birds of prey — following the pulse of cold front weather systems that drive them south across our continent to their winter homes in the tropics.

Acting like an immense geographic funnel, the lower Delmarva Peninsula directs southbound migrating birds along its coastlines toward the mouth of the Chesapeake Bay and beyond. The waters, marshes and upland forests of Virginia's Eastern Shore, a very significant, but relatively unknown, migratory bird stopover area, are host to over 300 species of birds. Flocks of songbirds drop out of the sky in the morning to rest in the forests and thickets after overnight flights of hundreds of miles. The shore's forests are dense with shrubs and vines critical to songbirds for food and cover from predators, including migrating birds of prey, or raptors, who exploit the songbirds as a food source.

On any given day, many of these birds can number in the tens of

thousands at places like Kiptopeke State Park and the Eastern Shore National Wildlife Refuge, both at the tip of Northampton County. For 34 years, volunteer researchers have been documenting songbird and raptor data at the current site of Kiptopeke State Park, making it one of the longest running migration banding stations in eastern North America. In that time, 239,452 songbirds and raptors of 157 species have been captured, banded, and released. In 1997, the banding season's "best bird" was a Cerulean Warbler, the first banded at Kiptopeke since 1986. See the table on page 7 for the most commonly banded birds of 1997.

Migratory bird researchers and banding volunteers currently work together under the auspices of the private non-profit group KESTREL (Kiptopeke Environmental Station Research and Education Laboratory), which was formed in 1994.

For the past 4 years, the Virginia Coastal Program has funded KESTREL interns to band songbirds and raptors, collect scientific data, and also to conduct the Autumn Hawkwatch at Kiptopeke. Since 1977, over 400,000 migrating raptors have been counted as they pass over the state's premier hawk watch station at Kiptopeke.

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Saving Space for Shellfish Farming and Sea Grasses: *Can We Have Both?*

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bottom. Sea grass can then colonize or expand into the clearer waters. Many shellfish farmers or "aquaculturists" claim there was no sea grass in the vicinity of their operation prior to putting out their clams, and that sea grass has moved in around them in the last few years. They believe that the filtering associated with the high numbers of animals has allowed the sea grass to come back. There are photographs which seem to support this. More studies are needed, however, to determine whether the aquaculturists are witnessing a natural recovery, or if there is a positive relationship between the aquaculture activity and sea grasses," says Neikirk.


But scientists like long-time sea grass surveyor Dr. Bob Orth of the Virginia Institute of Marine Science, argue that some of these areas where sea grass has returned were historic sites of sea grass beds, and that the aquaculturists are witnessing a natural recovery of sea grass into these areas. Dr. Orth has spent years mapping out sea grass beds using aerial photographs.

However, maps identifying current aquaculture activities are needed. Maps of leased grounds are available, but only a small percentage of these grounds are used for intensive aquaculture. "Before we can propose solutions to possible use conflicts, we need to first understand the magnitude of the problem. This could be accomplished by compiling locational data on existing and potential sea grass habitat and aquaculture operations onto a single map, along with information on depth, water quality, and public and private oyster grounds," says

Laura McKay, Virginia Coastal Program Manager. "Once we've done the mapping, we can begin to generate policy options. Although there may still be questions to answer such as, how large must a seagrass bed be to provide significant ecological benefits?"

As a step in this direction, the Coastal Program has contracted with the Virginia Institute of Marine Science to develop a use-suitability model for aquaculture and sea grass restoration and to develop a series of map overlays to identify possible conflicts between sea grass and aquaculture operations and areas for the possible expansion of both. Dr. Carl Hershner of VIMS will serve as the project manager and will work with Dr. Orth and other scientists and resource managers

to develop the model. The model will consider the optimal growing requirements of sea grass and shellfish. VIMS will then use available data to map one segment of coastal water on the bay side of Virginia's Eastern Shore and test the new model. "As additional data becomes available, we will make improvements to the use suitability model and its application to other areas in Virginia's coastal waters," explains Dr. Hershner.

The Coastal Program thanks and applauds the Marine Resources Commission, the Chesapeake Bay Commission, the Department of Agriculture and Consumer Services, the Virginia Institute of Marine Sciences, the Army Corps of Engineers and Cherrystone Aquafarms for coming to the table to help us find a solution. 

Sea Grasses provide shelter and a nursery area for many species of fish and shellfish, and are recognized as one of the most important blue crab nursery habitats. Sea grasses are also an important food source for many species of waterfowl. Most significantly, the abundance of sea grasses serves as an important indicator of the health of coastal waters. The presence of sea grasses indicates good water quality with low levels of nutrient enrichment and turbidity. The current acreage of seagrasses (about 63,000 acres) is only 10% of the potential or historical acreage.

Shellfish Farming is one of Virginia's most rapidly growing aquaculture industries. In 1995, according to the Virginia Aquaculture Statistics Survey, the reported value of Virginia's aquaculture industry was \$19.6 million in gross sales. Marine species, including clams and oysters, accounted for \$14.4 million, 73.5 percent of the total industry revenue. There are about 40 clam culturing facilities in Virginia with a majority located on the Eastern Shore. Aquaculture is a valuable tool in meeting seafood demand, and in reducing pressure on declining wild populations, increasing the odds of their recovery from over-harvesting.

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The migrants proceed in very precise rhythms with different species groups punctuating very specific segments of the extended migratory season. Research has shown that a majority of the birds are young of the year — those just hatched the season before — who fledge far to the north, probably in Canada, just weeks before they embark on their incredibly rigorous trek to Central and South American forests.

Over 1,600 people per year have been recorded visiting KESTRELS's two research stations at Kiptopeke State Park where they can see birds on a very personal level and talk with the experts who handle them. School children come to learn about the birds and migration, and about stewardship for the shore's birding habitat. Some lucky youngsters actually get the chance to hold and release a songbird or raptor.

The purpose of migratory bird observation and studies is to gather long-term data regarding fall migration along the Atlantic Flyway. This information is essential to the development of sound, comprehensive regional, national and international management plans. By establishing a long-term census project, populations and migratory trends can be assessed. Since 1991, Virginia's Coastal Program has been supporting the development of a special area management plan for Northampton County. The plan calls for adoption of policies by the County to protect critical migratory bird habitat - specifically the native trees, shrubs and vines on which the birds depend for food and cover.

This fall, Coastal Program interns will again be at Kiptopeke State Park, conducting daily research, bird counts and educational tours at the Park. Visitors and volunteers are always welcome. For more information, call Bill Williams, KESTREL, at (757) 253-6779. 🐦



Black-throated Blue Warbler:
Photo by Dwight Dyke, courtesy DGIF.

Fall Hawk Migration - How They Compare

Species	Hawk Mountain, PA	Cape May, NJ	Kiptopeke, VA
Black Vulture	48	241	2,156
Turkey Vulture	205	4,963	9,274
Osprey	566	5,579	5,557
Bald Eagle	127	215	327
Northern Harrier	204	2,186	1,137
Sharp-shinned Hawk	4,962	35,265	24,532
Cooper's Hawk	635	4,890	2,833
Northern Goshawk	87	60	20
Broad-winged Hawk	5,802	1,941	3,555
Swainson's Hawk	3,322	4,163	2,139
Red-tailed Hawk	0	3	4
Golden Eagle	96	27	28
American Kestrel	556	8,190	13,926
Merlin	148	2,211	2,396
Peregrine Falcon	42	1,465	1,351
Average annual total (1995-1997)	17,144	71,966	69,517
Average Observation Hours	1,055	808	964



Bander Mike Wilson
shows Richmond visitor, Richard Baker, the tiny numbers on the bird's band. Photo by Mary Arginteanu.



A member of Mrs. Trader's third grade class from the North Accomack School
prepares to release an Eastern Tufted Titmouse. Photo by Elizabeth Trader.

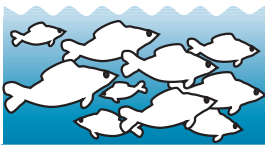
Most Commonly Banded Bird Species 1997

Species	Number	Percent of Total Birds Banded
Yellow-rumped Warbler	2,648	57.00%
American Redstart	310	6.70%
Common Yellowthroat	183	3.90%
Black-throated Blue Warbler	132	2.80%
Gray Catbird	121	2.60%
Ruby-crowned Kinglet	87	1.90%
White-throated Sparrow	82	1.80%
Western Palm Warbler	78	1.70%

A total of 4,626 birds were banded representing 83 species.

New Publication!

Migratory Songbirds of the Lower Delmarva - A Habitat Management Guide for Landowners - August 1998. This 24 page booklet explains why Virginia's Eastern Shore is so critical to migratory songbirds. It provides guidelines for restoring and enhancing migratory songbird habitat. Although this guide was designed for use by residents of Northampton County, others may also find it useful. Please call Laura McKay, (804) 698-4323 for copies.



COASTAL NETWORK IN ACTION

Coastal Program Buffer Planting Highlights...

Shoreline Erosion



Before



After

Zoar State Forest, King William County - Trees can also be used as a natural revetment to buffer shorelines against water currents which can cause stream bank undercutting and erosion. At this site, Eastern Red Cedars now protect a once severely eroding bank from further degradation. Vegetation will be planted above the revetment to further stabilize the bank. Photos by William Reay, VIMS, CBNERRS.

Wildlife Habitat

U.S. Fish & Wildlife Eastern Shore Wildlife Refuge - Refuge staff, assisted by the Chesapeake Bay Bridge Tunnel District and students from the Legacy Program at Northampton County High School, plant trees and shrubs native to Virginia's Eastern Shore. This site will provide a much needed rest stop and food source for migratory songbirds and raptors. Photo by William Reay, VIMS, CBNERRS.



Q Area, Yorktown Naval Weapons Station - Thousands of bare seedlings will in coming years provide wildlife habitat at the Yorktown Naval Weapons Station where acres of land were once cleared by the station to enhance security. Naval personnel planted alongside civilian volunteers. Photo by Virginia Witmer.



Water Quality

Before



After



U.S. Fish and Wildlife Service Rappahannock River Reserve System, Tayloe Wildlife Refuge, Richmond County - A riparian buffer was established in the refuge to protect a perennial stream from sediment and nutrient loadings. Summer grasses and mixed hardwoods were planted to provide short-term and long-term protection. Photos by William Reay, VIMS, CBNERRS.

Thanks to Many Volunteers...



Belle Isle, James River Park System, City of Richmond - Over 120 staff from Virginia's natural resources agencies worked on Belle Isle during three days of planting in the spring of 1997. Photo by Virginia Witmer.

Difficult Run Watershed, Fairfax County - Over 700 volunteers from the Difficult Run Watershed community have assisted in riparian plantings since 1995. Photo courtesy of the Department of Forestry.



A Few More Coastal Program Funded Sites...

Planting Site	Benefit	Shoreline(ft)/Acreage
* Portsmouth City Park	Habitat	350/0.2
* USF&WS Tayloe Wildlife Refuge, Richmond, Co.	Water Quality	3170/3.2
* USF&WS Eastern Shore Wildlife Refuge	Habitat	300/20.4
* Belle Isle Park, City of Richmond	Habitat Education	670/1.6
* Larchmont Library, City of Norfolk	Habitat, Sediment Erosion Control Education	540/0.4
* Turkey Road, Yorktown Naval Weapons Station	Habitat	1300/4.5
* Q Area, Yorktown Naval Weapons Station	Habitat, Sediment Erosion Control	6340/14.5
King William Recreational Park	Sediment Erosion Control, Habitat	650
Zoars State Forest, King William County	In-Stream Erosion Control	125/<0.1
Difficult Run Watershed Fairfax Co. (1996-1998)	Habitat, Erosion Control	14,784 feet
* Belle Isle State Park (Rappahannock River)	Habitat, Erosion Control	800 feet
* Hog Island Wildlife Management Area (James River)	Habitat, Erosion Control	1200 feet

**Total 30,229 feet
(5.73 miles)**

* completed

New Riparian Publications

Commonwealth of Virginia Riparian Forest Buffer Implementation Plan - August 1998. Prepared by the Virginia Riparian Forest Buffer Panel. This Implementation Plan addresses Virginia's commitment to restore 610 miles of riparian forest buffer by the Year 2010. The plan outlines the Commonwealth's riparian forest conservation and restoration program and policy recommendations to the Governor, and includes the recommendations of the Chesapeake Bay Program, which are: enhance program coordination and accountability; promote private sector involvement; enhance incentives; support research, monitoring, and technology transfer; and promote education and information. The plan also includes a copy of a Riparian Forest Buffer Inventory Form developed by the panel for distribution throughout the state to assess progress toward Virginia's conservation and restoration goals. Please call Mike Foreman, Dept. of Forestry at (804) 977-6555, for a copy of the plan.

Native Plants for Conservation, Restoration, and Landscaping - Riparian Forest Buffers Prepared by the Department of Conservation and Recreation, Division of Natural Heritage. For a copy of this brochure call (804) 786-7951, or visit the DCR-DNH web page at <http://www.state.va.us/~dcr/vaher.html>

Riparian Forest Buffer Video - This video, produced by the University of Maryland Cooperative Extension Service for the Forestry Workgroup of the Chesapeake Bay Program, gives a general overview of the values and functions of a riparian buffer. Please call the extension service for a copy of the video at (410) 827-8056.

Urban Riparian Forest Buffer Web Site - <http://www.state.va.us/~dof/riparian.html>.

Developed through the Difficult Run Buffer Restoration project in Fairfax County for the Department of Forestry, this Web site educates browsers about the values of riparian buffers and the influence buffers have on water quality. Using the Difficult Run project as an example, the site highlights conservation and restoration efforts in an urban watershed. DOF is also working on a guide to riparian restoration in urban watersheds. Watch for details in our next newsletter.



Calling Surveys to Sound Out Amphibian Declines in Virginia

By Krista Madaris

Amphibians have lived on our planet for 360 million years, and have survived two mass extinctions including that of the dinosaurs. However, for over a decade, herpetologists* from all over the world have documented declines in amphibian populations. As a result of these startling findings, there is currently a cooperative worldwide effort to survey amphibian populations.

This fall, the Virginia Department of Game and Inland Fisheries (DGIF) will enlist volunteers across the state to participate in a survey of the state's amphibian populations. How do you locate a toad or frog? You listen for their distinct call. The DGIF survey will contribute to a worldwide initiative to document amphibian populations.

Worldwide Amphibian Declines

Although they have adapted and survived for millions of years, the vulnerabilities of amphibians are becoming more apparent each day. In the late 1980's scientists began to realize that what they believed were isolated amphibian declines were actually occurring on a global scale. Some declines were considered natural population fluctuations but others were very different. In response, a group of herpetologists established the Declining Amphibian Populations Task Force (DAPTF) in 1991. The establishment of this task force was crucial because little was known about the dynamics of many amphibian populations. Base line information like population size, and the general health of amphibians was, and still is, very limited. The DAPTF now has over 3,000 supporting scientists and conservationists from every continent and in more than 90 countries around the world.

Research conducted since the late 1980's is beginning to tell us part of the story. Several human related activities have been implicated in the decline of amphibian populations including: habitat modification, pollution, over-collection, climatic fluctuations, increases in UV-B irradiation and the introduction of non-native species. The environmental changes that result from these activities are complex and affect each population differently. Additionally, they are not acting independently. The combined, or synergistic, effects are much more complex and fatal.

North American Response to Declines

As the North American component of the DAPTF, the North American Amphibian Monitoring Program (NAAMP) is responsible for initiating and supporting monitoring programs in Canada, Mexico, and the United States. The NAAMP has designed protocols to monitor native and introduced amphibian populations. These include surveys of terrestrial salamanders,

aquatic systems, western habitats, and frog calls.

In addition, the NAAMP is coordinating a large scale atlas project. Each state that conducts surveys and records the ranges of their amphibian populations submits the data to the NAAMP.

This data will be incorporated into a nation-wide baseline data set that will enable us to watch fluctuations in amphibian populations.

Virginia's Efforts

Virginia is blanketed with beautiful fresh water habitats, including dense swamps, sink hole complexes, and wetlands. These areas, critical for many species, are disappearing in Virginia's coastal area. What we think of as progress can quickly devastate the diverse array of habitats that are part of our natural heritage, and essential to amphibians. Unfortunately, development near such areas seems inevitable. This is necessary to develop an understanding of how our amphibian populations are doing now, so that we have a base line with which to compare data sets of the future.

The DGIF survey program will monitor frog and toad (anuran) populations in Virginia, and will follow standardized protocols set by the NAAMP so that the Commonwealth can contribute to the national data set. The survey will focus on determining the abundance of common amphibian species and their ranges. DGIF will enlist volunteers, who will learn how to identify frog calls, establish survey routes, and conduct surveys. During the first year, 6-12 routes will be established across Virginia, with over 100 routes being the goal of the program.

This survey program is extremely important throughout Virginia. Not only is the program important in the coastal area, where urban and suburban sprawl is prevalent, but also in Virginia's mountain regions, where industry and other anthropocentric** causes are also a factor in amphibian declines. Once fully implemented, the NAAMP program will be a crucial part of monitoring coastal amphibian populations and monitoring the effects of human development.

As the program matures and more data are collected, the fluctuations of our more common, hardy amphibian species will



**Barking tree frog. Photo by Steve Robley
DCR Division of Natural Heritage.**

Amphibians of Virginia's Coastal Zone

(43 Species!!)

Salamanders

3 mole salamanders such as the eastern tiger salamander **SE**
3 dusky salamanders such as the Atlantic coast slimy salamander
northern redback salamander
four-toed salamander
many-lined salamander
2 mud salamanders - eastern and northern
2 brook salamanders such as the northern two-lined salamander
three-lined salamander

Toads

3 true toads such as the Fowler's toad & oak toad **SSC**
eastern spadefoot toad
eastern narrow-mouth toad

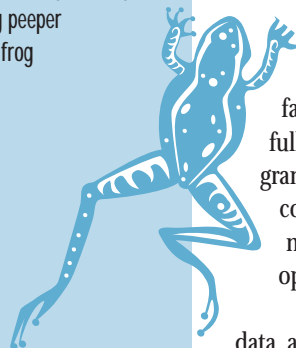
Frogs

2 cricket frogs - northern and southern
5 tree frogs such as the squirrel treefrog & barking treefrog **ST**
5 chorus frogs such as the northern spring peeper
6 true frogs such as the southern leopard frog

Other amphibians...

greater siren
dwarf waterdog
two-toed amphiuma
red-spotted newt

SE = State Endangered Species
SSC = State Special Concern Species
ST = State Threatened Species



*Scientists that study amphibians and reptiles
**Human-related



VISIT THIS PUBLIC ACCESS SITE

Cape Charles Dune Crossovers and Boardwalk

The Town of Cape Charles on the bayside of Virginia's Eastern Shore now offers two new dune crossovers to its public beach visitors. The two crossovers, funded by the Virginia Coastal Program, are handicapped-accessible and include a deck platform overlooking the Chesapeake Bay. The elevated crossovers eliminate the need for people to walk directly on the dune grasses. Foot traffic kills the dune grass which "holds" the sand on the dune. The dunes provide critical storm protection to the houses near the beach. The former foot paths have been blocked with snow fences, and revegetated with dune grasses. This project also included the construction of an information kiosk.

Also to be constructed in the Cape Charles Eco-Industrial Park is a habitat trail, boardwalk, and a Chesapeake Bay overlook, which will provide bird watching access. This boardwalk will be part of a 29 acre Coastal Dune Natural Area Preserve, purchased with funds awarded from the U.S. Fish and Wildlife Service through the Virginia Department of Conservation and Recreation. The Virginia Coastal Program prepared the application for this National Coastal Wetlands Grant. This project will also include revegetation of dune habitat in the vicinity of the boardwalk and a 100-foot wide buffer between the walkway and the adjacent Bayshore Concrete Company site.



A previously man-made path, which has since been revegetated, runs parallel to one of the Town's new dune crossovers. Photo courtesy of Northampton County.

For directions to the Cape Charles sites, please call Tim Hayes, Northampton County Sustainable Development Office at (757) 331-1998. Cape Charles is about a two-hour drive from Richmond.

Calling Surveys...

continued from page 10

allow us to understand national trends. If we only monitor those animals that are already in trouble we will not see the complete picture. However, endangered species research is important, and the VDGIF is monitoring our endangered amphibians as well. General surveys on salamanders, and terrestrial and aquatic systems are also being conducted.

The success of VDGIF's anuran survey, will depend on many volunteers. If you are interested in volunteering, please contact: Krista Madaris C/O Don Schwab, Non-Game and Endangered Species Program, Virginia Department of Game and Inland Fisheries, 5806 Mooretown Rd., Williamsburg, VA 23188. E-mail: KristaM1@juno.com. See Coastal Contributions for additional sources of information on amphibians.

Related Amphibian Surveys

Successful conservation initiatives often reflect the efforts of numerous scientists, resource managers and citizens.

Another state agency with a key role in the conservation of amphibians is the Division of Natural Heritage at the Department of Conservation and Recreation.

Most recently, DCR-NH completed a three-year study of the Grafton Pond Natural Area Preserve in York County. The department intensively surveyed about 50 ponds in the preserve to determine which species of amphibians, and other animals and insects, inhabit and use each of the ponds. This zoological survey, and an ecological classification of vegetative communities in the area, will be incorporated into the Grafton Ponds Natural Area Preserve Resource Management Plan. What is learned about amphibians in this preserve, and in Virginia's other significant natural habitats, will contribute to an overall picture of amphibian populations and their habitats in the Commonwealth.

Coastal Projects Leveraging Continued Success...

Elizabeth River Greenway Plan Gaining Momentum

In 1994, the Virginia Coastal Program funded construction of the Elizabeth River Nature and Canoe Trail in Virginia Beach. As a result of the success of the trail, the City of Virginia Beach is developing a greenways plan for the Eastern Branch of the Elizabeth River. The greenways plan will be designed to increase recreational opportunities, enhance protection of natural resources, promote neighborhood character, increase property values in the watershed, and, finally, draw local business and community leaders together in a common vision for preserving the ecological and recreational values of the watershed.

The Eastern Branch of the Elizabeth River is a highly developed watershed with limited public access. The greenways plan will address seven major themes: enhanced bikeways; new canoe access points; potential acquisition, restoration and preservation of limited open space areas; environmental education; tidal wetlands restoration; stormwater management retrofitting; and, neighborhood and economic development revitalization.

The plan was scheduled to be completed by September 30, 1998, and presented to the City Council for adoption. Due to limited financial resources, the city will pursue grant funding to assist in implementing the plan. For more information, please contact Clay Bernick, Virginia Beach Department of Planning, Environmental Management Center, at (757) 427-4621.

Counting Our Fishes

This September, commercial and recreational fishermen from Maine to Florida joined 23 state, regional and federal partners to begin the nation's most ambitious fisheries data collection and management program.

The Atlantic Coastal Cooperative Statistics Program (ACCSP) will encompass all east coast marine fisheries resources, and all fisheries sectors from recreational anglers to charterboat and headboat operators to commercial fishermen and seafood processors/dealers. Representatives from all segments of the fishing industry have been included in the development of the program.

Biologists, resource managers and fishermen agree that accurate, complete fisheries data is necessary to balance the needs of fishermen and conservation of marine resources. Fisheries managers rely on data provided by fishermen regarding the type, quantity and size of the fish they catch, how many fishing trips they take, how long their fishing trips last, what type of gear they use and where the fish are caught. Decision-makers also need information on life span, spawning age, and average size in order to assess the size of populations.

Insufficient or inaccurate data creates a high degree of uncertainty and distrust not only in stock assessments, but in the fishery management decisions based on these assessments. As fish stocks decline, managers must rebuild fish stocks based on whatever information is available. If the available information is wrong or outdated, the regulations may be inappropriate. The management of bluefish along the Atlantic coast, for example, has been hampered by inadequate age and length data. Interviews conducted with fishermen prior to the development of the ACCSP said they would support management efforts if they had faith in the data.

The ACCSP will change the way coastal and marine fisheries are managed along the entire Atlantic coast. The new program will: 1) set a standard for fisheries data collection to be used by all federal, state and regional management agencies; 2) simplify and reduce duplicative efforts to collect data; 3) improve the quality and quantity of data collected coastwide, including biological and socio-economic data, quota and bycatch monitoring data, and locational information; and 4) set-up one place for housing all fisheries information in a new data management system, which will provide easy access to data by managers and fishermen.

Atlantic coastal states have not been collecting the same fishery information, nor have they been collecting data in the same time frame. This has made it difficult to assess stocks that migrate along the coast and to compare coast-wide fishing trends. By unifying all existing collection approaches into one system, the ACCSP will lead to better, more accurate and current data, and better fisheries management decisions. *What does this mean for Virginia's fisheries?*

The Virginia Marine Resources Commission has long expressed an interest in a cooperative coastwide fisheries statistics program and has participated in numerous efforts to share valuable fisheries data with its Atlantic coast partners. In an effort to promote the Atlantic Coast Cooperative Statistics Program (ACCSP), the Commission agreed to chair the coordinating Council of the ACCSP during its first year.

Highlights of ACCSP Improvements

Socioeconomic data will be collected in order to understand the impacts regulations have on the lives of fishermen and communities.

Biological sampling efforts will be expanded. Baseline biological data, including size and age will be collected. Latitude/longitude will be noted so that data can be "mapped" in a GIS.

Commercial Fisheries: A two-ticket system for commercial fishermen and dealers. They will report separately and share reporting responsibilities. Data can then be compared and verified. Commercial fishermen will also be sent periodic statements of their data records, so they can check for accuracy.

Mandatory reporting of protected species interaction. A coast-wide, at-sea observer program may be required. Protected species include dolphins, porpoises, whales and sea turtles.

A computerized, interactive, voice response system will be created to monitor fishing quotas. This will guarantee the availability of summarized landing data in 30 days and aid in timely and accurate decisions related to total allowable catch.

Recreational Fisheries: A universal survey and sampling method for all fishermen in all Atlantic coast states, will include tidal and freshwater areas and more information from out-of-state anglers.

For-Hire Fisheries: For-Hire catch data will be collected in a distinct category, and a comprehensive listing of all for-hire vessels will be produced. For-hire vessels can be sampled in a more efficient manner, because unlike recreational anglers, the number of vessels is known.

Non-native Aquatic Species ALERT...

In June, two "veined rapa whelks", natives of the Sea of Japan and the Yellow Sea, never before found in the Atlantic Ocean, were dredged up by VIMS scientists near the Monitor-Merrimack Memorial Bridge-Tunnel in Hampton Roads. The whelks are believed to have arrived in the ballast water of a cargo ship. In August, VIMS reported that egg cases were found, which indicates that other whelks are out there and reproducing. Although their numbers have not been determined, they could pose a serious threat to Virginia oysters and clams. Virginia's native whelks eat shellfish, however this Asian counterpart could be a more formidable predator. They spread out faster (their larvae do not stay near the parent, but float with the current), and they apparently are not susceptible to the periodic flushes of fresh water that keep Virginia's native whelk populations in check in the Bay. Be on the lookout for this whelk — it has a broad shell, stubby tail, deep orange inner shell and row of ridges along its open edge. To view a photo of the whelk, visit <http://www.vims.edu/rapana/>. If you believe you have found one, please call the Virginia Institute of Marine Science at (804) 684-7360

The Virginia Mandatory Reporting Program, which has been in effect since January 1, 1993, was used as a model for the standard ACCSP reporting form. Many of the uniform and detailed components of the Virginia form were captured in the new ACCSP reporting form. Virginia's watermen will find the new form familiar, and the transition to the ACCSP in the Commonwealth will be less difficult than in states who have not previously benefitted from Virginia's reporting experience.

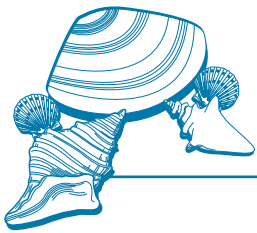
"With the Commission's experience in designing, implementing and enforcing its own mandatory statistics program, implementation of the ACCSP is expected to go smoothly. Little in the way of significant changes are anticipated.

"The universal forms adopted by the ACCSP can be used by any fisherman regardless of where he fishes or to whom he reports. Further, fishermen will be able to review their reports periodically to ensure the accuracy of the data entered into the system," explains Jack Travelstead, Chief of the Fisheries Management Division at the Virginia Marine Resources Commission.

For more information on the ACCSP program and Virginia's Statistics Program, visit the VMRC web site at <http://www.vmrc.state.va.us>, or call Jack Travelstead, Virginia Marine Resources Commission at (757) 247-2247. Portions of this article have been adapted from a May 1998 article in the *ASMFC Fisheries Focus*.

What's What and Who's Who in Virginia's Water Quality Programs

Authority		Virginia's Implementing Agencies	Resources/Year
FEDERAL	Clean Water Act of 1972 (CWA) Administered by EPA. Establishes water quality standards/discharge permits program, nonpoint source control program; regulates combined sewer overflow in estuaries; authorizes dredge and fill wetlands permits jointly with Army CORPS of Engineers; Authorizes expenditures for Chesapeake Bay Program.	DEQ (Section 402-VPDES/VPA permit program) DEQ (Title 6) Wastewater Revolving Loan Fund DEQ (Section 303(d)-Impaired Waters List; 305(b) Water Quality Assessments) DEQ (Section 401-VWPPP permit program) DCR (Section 319-nonpoint source program)	\$1.8 million (implementation under Section 106) \$75-80 million [\$30 fed;\$6 state; earnings] \$1.9 million (grants)
	Coastal Zone Management Act of 1972 (CZMA) Administered by NOAA. Provides for management of nation's coastal resources through approved state programs. State and federal activities in coastal zones must be consistent with state programs. The CZMA was reauthorized in 1990 to include Section 6217-implementation of a Coastal Nonpoint Source Pollution Program.	DEQ lead agency for Virginia Coastal Program (Sections 306-implementation, 309-resource enhancement, 6217-coastal nonpoint program) (Networked agencies implementing laws and policies of program: DEQ, VMRC, DCR, DGIIF; DCR lead agency for Coastal NPS Program)	Funding from NOAA: \$2.7 million (implementation/grants)
	Clean Water Action Plan 1997 Presidential directive for plan to meet goals of CWA - target community-based watershed protection efforts and new resources to control polluted runoff.	TBD	TBD
	REGIONAL Chesapeake Bay Program (CBP) Initiated with a 1983 Agreement among Virginia, Maryland, Pennsylvania, District of Columbia, EPA and Chesapeake Bay Commission to work together to solve the water quality problems of the Chesapeake Bay, and protect its living resources. New Agreement signed in 1987. Annual Directives issued each year by Executive Council.	DEQ, DCR, CBLAD, VMRC (Tributary Strategies, Toxics Reduction Strategies, water quality and living resource monitoring, habitat protection and fisheries management)	technical/managerial staff Funding from EPA under CWA Section 117: \$2.8 million (DCR-CBP implementation) \$.5 million (DEQ-monitoring funds)
STATE	Water Quality Improvement Act of 1997 (WQIA) To restore and improve the quality of state waters, and protect them from future impairment. Established the Water Quality Improvement Fund (WQIF).	DEQ (point source lead agency) DCR (nonpoint source lead agency)	WQIF for 99-00 Biennium: \$37.1 million (sewage plant upgrades) \$16.8 million (implementation of adopted tributary strategies)
	Chesapeake Bay Preservation Act of 1988 (CBPA) In response to the Chesapeake Bay Agreement. To improve the water quality of the Chesapeake Bay and its tributaries through measures to reduce adverse impacts of land use and development.	CBLAD	\$.8 million (grants to Tidewater localities)
CONTACTS: (All numbers are in 804 area code) DEQ: Point Source Program - Larry Lawson, 698-4108; John Kennedy (WQIF), 698-4312; Ron Gregory (303(d); 305(b)), 698-4471; Wastewater Revolving Loan Fund - Donnie Wampler, 698-4132; Joe Hassell (VWPPP), 698-4072; Virginia Coastal Program - Laura McKay, 698-4323 or Jeannie Butler, 698-4333; DCR: Chesapeake Bay Program - Alan Pollock, 698-4002 or Larry Minock, 698-4318 Nonpoint Source Program - Stu Wilson, 786-4382 or Rick Hill (319/6217), 786-7119; Charlie Lunsford (WQIF), 371-8984 CBLAD: Chesapeake Bay Preservation Act - Scott Kudlas, 371-7500			



New Staff for Coastal Program

Erin Schneider previously worked as a secretary for DEQ's Director of Special Programs, and will be of great assistance to the program, which has been without clerical support for the last few years.



Erin Schneider - Support Technician

Erin will also work closely with Jeannie Butler and Eileen Rowan in grants management, and help track the many reports and products that flow through the program.

Mark Slauter comes to us from the Hackensack Meadowlands Development Commission in Lyndhurst, New Jersey, where he worked for 8 years as a Staff Planner. Mark participated in a Master Plan revision process which included a Special Area Management Plan (SAMP) for the Meadowlands region.



Mark Slauter - Analyst

Mark is currently pursuing a Masters in Urban and Regional Planning from Virginia Commonwealth University to be completed next year. His work with the Coastal Program will focus on the program's strategic planning and updates to the "Program Document", our Federal Environmental Impact Statement (FEIS). Mark will also assist with special projects, such as the Southern Watershed Special Area Management Plan.

Local adoption of a stormwater management ordinance or program is voluntary. Prior to the recent amendments, the SMA required that a locality implement all three of the above stormwater components in order to adopt a stormwater management program.



New Soil and Water Staff

As a result of funding through the Water Quality Improvement Act, the Department of Conservation and Recreation, Division of Soil and Water Conservation, has hired a regional Water Quality Manager in each of its eight regional offices, including four offices in Virginia's coastal zone - Tappahannock, Warrenton, Suffolk, and Henrico. These managers will coordinate river basin planning and nonpoint source water quality projects in these localities. They will also supervise existing erosion and sediment control, stormwater, shoreline and nutrient management staff and a Conservation District Liaison, as well as improve integration of these programs.

Virginia's 1997 Water Quality Improvement Act calls for Virginia's agencies to work cooperatively on local water quality management projects. These new managers will work closely with the Department of Environmental Quality's regional offices responsible for point source management in these areas. For more information, contact Moira Croghan, DCR, at (804)786-3958.

Virginia Stormwater Regs Amended

In March 1998, the Virginia Board of Conservation and Recreation approved amendments to Virginia's Stormwater Management Regulations under the Stormwater Management Act of 1991 (SMA) [Article 1.1 (Section 10.1 - 603.1 et. Seq.)] of Chapter 6 of Title 10.1 of the Code of Virginia. DCR is designated by the General Assembly as the lead nonpoint source agency. The SMA is the only state law which implements all three components of a comprehensive stormwater program - stormwater quality, stream channel erosion and flooding.

Local adoption of a stormwater management ordinance or program is voluntary. Prior to the recent amendments, the SMA required that a locality implement all three of the above stormwater components in order to adopt a stormwater management program.

Amendments to the regulations will allow a local government to adopt a program if the local stormwater ordinance contains one minimum provision - a flooding component. The other two components - stream channel erosion

and water quality are optional, however, localities will be encouraged to incorporate Erosion and Sediment Control regulations, which are already required state-wide and consider stream-channel erosion measures. Localities in Virginia's coastal zone that have adopted one, will also be encouraged to include their Chesapeake Bay Act ordinance, which addresses water quality issues.

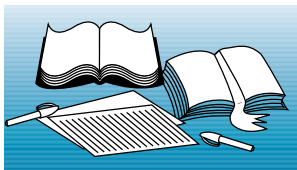
Amendments also consolidate stormwater runoff quality technical criteria from the three state agencies involved in the regulation of stormwater quality — DCR, the Department of Environmental Quality and the Chesapeake Bay Local Assistance Department. This will help eliminate the potential for duplicative and possibly conflicting reviews and approvals required by more than one agency for certain development projects.

Finally, the amended regulations provide a comprehensive umbrella of enabling authority under which to implement all of the components of a local stormwater program, rather than the fragmented enabling legislation (subdivision, zoning, public health, etc.) under which many local stormwater programs currently operate.

For more information on stormwater management programs and the above amendments, please call Joe Battiatia, DCR at (804) 371-7492.

New Natural Heritage Staff

With approval of the 1999-2000 state budget, the Department of Conservation and Recreation will be hiring eight new positions to manage the growing State Natural Area Preserve System, which now includes 24 sites, 14 in Virginia's coastal zone. The natural area staff will include regional land stewards, ecologists, a fire management coordinator, and an information specialist. In addition, ten new, non-general fund positions were approved to help DCR meet Natural Heritage Program grant and contract obligations. The new, non-general fund staff include a field botanist, zoologist, fire management specialist, ecologists, GIS specialists, and a full-time locality liaison supported with funding from the Virginia Coastal Program.



COASTAL CONTRIBUTIONS

Year of the Ocean Publication

Our Ocean Future - Themes and Issues Concerning the Nation's Stake in the Oceans Developed for Discussions During 1998, The Year of the Ocean

Final report of a Steering Group describing issues affecting the nation's ocean future and, consequently, its economic and environmental future.

Copies of the report can be purchased from the National Technical Information Service by calling 1-800-553-NTIS or place an order via the Web at <http://www.NTIS.gov.ordernow>. The report can also be viewed on The Heinz Center's web site at <http://www.heinzctr.org>.

Air Pollution and Airshed Reports

Air Pollution and the Chesapeake Bay - November 1997 - Alliance for the Chesapeake Bay White Paper

This paper discusses some of the major issues involving airborne deposition affecting the Chesapeake Bay and other coastal waters. Funding for the paper came from the Air Subcommittee of the Chesapeake Bay Program. For copies call the Alliance for the Chesapeake Bay at 1-800-YOUR-BAY.

Shared Resources: Airsheds and Watersheds II - Chesapeake Bay Program Air Subcommittee

This is an April 1998 report on the regional impact of atmospheric nitrogen deposition on east and gulf coast estuarine eutrophication. The view adopted is that the atmosphere constitutes a "shared resource" carrying pollutants that affect many ecosystems.

The report was prepared by NOAA and EPA scientists serving on the Air Subcommittee of the Chesapeake Bay Program. Copies of the report are available by calling Maggie Kerchner, NOAA Chesapeake Bay Office at 1-800-968-7229 ext.670.

Native Plants for Conservation, Restoration, and Landscaping - Grasslands

This is the fifth in a series of brochures produced by DCR's Division of Natural Heritage promoting the use of native plants for conservation planting and natural community restoration in Virginia. This brochure provides needed technical information on establishing warm season grasslands—including many wildflowers, and an explanation of the many values associated with grasslands. Also included is a comprehensive list of native plant species appropriate for establishment of grassland communities in different regions of Virginia and under various combinations of site moisture and light availability. The Virginia Coastal Program provided funding to print an additional 2,500 copies of the Grasslands brochure. Brochures are available by calling the Division of Natural Heritage at 804/786-7951 or visiting the DCR-DNH web page at <http://www.state.va.us/~dcr/vaher.html>.

Two New Canoe Trail Brochures

DCR's Division of Natural Heritage has produced two new interpretive brochures with funding from an EPA grant administered by DCR's Division of Soil and Water. The brochures provide navigation and natural history information on two small, beautiful waterways on the west side of the North Landing River. The trail guides are titled, *Alton's Creek - A Canoe Trail in the North Landing River Natural Preserve* and *The Path of the Dragonfly - A Canoe Trail for Pocaty Creek in the North Landing River*

Preserve. Call the Division of Natural Heritage at 804/786-7951 or visit the DCR-DNH web page at <http://www.state.va.us/~dcr/vaher.html>.

Tributary Strategy Documents

Initial plans for water quality improvement in the James and York Rivers, and a status report on development of a strategic plan for the Rappahannock River are now available. Technical challenges faced by the federal EPA modeling team delayed production of a scientifically defensible water quality model for these rivers. Therefore, the strategic plans now available are the initial blueprints. Final plans incorporating numeric goals for pollution reduction in each river will be developed when the models are completed later this year.

Copies of the plans are available for review at Planning District Commission offices, Soil and Water Conservation District offices and Richmond offices of the Departments of Conservation and Recreation, Environmental Quality and Chesapeake Bay Local Assistance. They are also available on the DEQ website at <http://www.deq.state.va.us>.

Check Out These Web Sites

<http://www.csc.noaa.gov/coastalamerica/> - Established in 1992, Coastal America is an interagency partnership of 12 federal agencies working together to protect, preserve and restore coastal ecosystems through existing federal capabilities and authorities, and integrating federal actions with state, local, and tribal governments and nongovernmental organization efforts. Their web site includes descriptions of projects undertaken throughout the nation in our coastal regions.

<http://www.cmc-ocean.org> - The Center for Marine Conservation, a non-profit organization committed to protecting ocean environments and conserving the global abundance and diversity of marine life through science-based advocacy, research and public education. The CMC is instrumental in coastal clean-up campaigns.

<http://www.epa.gov/ceis> - Center for Environmental Information and Statistics (CEIS) Web page on EPA's Home Page.

<http://www.pif.nbs.gov/pif> - Partners In Flight is a cooperative program created to focus resources on the improvement of monitoring and inventory, research, management, and education programs involving birds and their habitats.

More Information on...

Amphibians in Virginia (see story on page 10)

The NAAMP maintains and continually updates a website at: <http://www.mpl-pwrc.usgs.gov/amphibs.html>.

Other web sites of interest include: www.im.nbs.gov/naamp3/naamp3.html, www.im.nbs.gov/amphibs.html, www.im.nbs.gov, and www.open.ac.uk/OU/Academic/Biology/J_Baker/JBtxt.

And check out these publications. **Tracking the Vanishing Frogs** by, **Reptiles and Amphibians** by Roger Conant and Joseph T. Collins, **Reptiles and Amphibians** edited by Harold Cogger and Richard Zweifel and for more in depth information try **Ecology and Conservation of Amphibians** by T.J.C. Beebee, and **Measuring and Monitoring Biological Diversity Standard Methods for Amphibians** edited by W. Ronald Heyer et al.

Coastal Calendar

October 9 - 11 Sixth Annual Eastern Shore Birding Festival

Headquartered at the Sunset Beach Inn, Northampton County, Virginia (near the Eastern Shore Wildlife Refuge)

Join us to celebrate the Fall migration of thousands of Neotropical songbirds and raptors that congregate to rest and feed on the tip of the Delmarva Peninsula before flights of hundreds of miles to the tropics. Guided tours, exhibits, workshops and presentations, food, retail vendors, children's programs and games. Special guest speaker - Kenn Kaufman - author of the video version of Roger Tory Peterson's North American Birds and books considered standard references to birders. Fee. For more information or to register, please call the Eastern Shore Chamber of Commerce at (757) 787-2460.

October 10 2nd Annual Green Sea Festival

Munden Point Park, Chesapeake, Virginia - 10:00 a.m. - 5:00 p.m.

Celebrate and promote the preservation and conservation of the Southern Watershed Area (Virginia Beach and Chesapeake). The festival highlights the area's significant, natural, cultural and historic resources. Exhibits, entertainment, demonstrations, retail vendors, food, children's activities and games. This festival was created as an outreach and education component of a Special Area Management Plan for the Southern Watershed. See story page 5, News Around the Zone. Free to the public. For more information and directions to the festival, please call the Hampton Roads Planning District Commission at (757) 420-8300.

October 17 - York River Fall Festival

The York River Fall Festival, formerly known as Estuaries Day, is an annual celebration of our estuaries. Sponsored by the York River State Park, and the Chesapeake Bay National Estuarine Research Reserve in Virginia. The festival is held at the York River State Park in Croaker, Vir-

ginia, and offers entertaining educational activities for people of all ages, including an ecology cruise on the Research Vessel Bay Eagle, crabbing trips on small workboats, canoe trips on Taskinas Creek, naturalist and geology/fossil hikes, fish seining, ecolandscaping classes, teachers' workshops, exhibits and much more. For more information, contact the York River State Park at (757) 566-3036, or visit <http://www.vims.edu/cbnerr/>. Parking fee: \$4 per car, \$10 per bus. This year a gourmet seafood feast and dance will be held from 6:30 P.M. - 9:30 P.M. The cost is \$25 per person. Parking will be free for this event. Bring the kids along too! Call the park for more information and ticket sales.

November 18 - 22 2nd International Conference on Shellfish Restoration

Hilton Head, South Carolina. Crowne Plaza Resort. Invited and contributed oral and poster presentations and workshops. A session will also be organized by the Oyster Disease Research Program. For more information, please call Elaine Knight at (803) 727-6406 or fax at (803) 727-2080. Or see the Web site: <http://www.csc.noaa.gov/SCSeaGrant/text/ICSR.html>. If you are interested in submitting an abstract, contact Rick DeVoe: devoemr@mus.edu

December 16 - 17 Winter Botany Course

Part of a series of wetland education courses offered by the Wetland Education Program at the Virginia Institute of Marine Science. A lecture course with laboratory exercises. Cost \$200. REGISTER EARLY. NUMBERS LIMITED. Course fees accepted until first day of class. To register or for more information, please call Bill Roberts, (804) 684-7395.

As a convenience to our readers, the Virginia Coastal Program News provides addresses to many web sites. The Virginia Coastal Program is not responsible for the content of these web sites.

If you would like to add an event or deadline to the Coastal Program News or the Coastal Program Web site calendar, please call Virginia Witmer, Newsletter Editor at (804) 698-4320 or e-mail: vgwitmer@deq.state.va.us

COASTAL PROGRAM NEWS

Virginia Coastal Resources Management Program

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Visit our web site at: <http://www.deq.state.va.us/envprog/coastal.html>!